

THE VALIDITY OF OXALIS AMERICANA.

M. L. FERNALD.

THE Wood Sorrel of the northern mossy forests of eastern America has been known in all American writings since the days of Michaux and Pursh as *Oxalis Acetosella* L., thus implying the identity of our plant with the European species. Only at one period in American Systematic Botany has the identity of the American and European plants been questioned, and then only in a half-hearted way. In 1824, DeCandolle¹ published the American plant as *Oxalis americana* Bigelow *in litt.*, separating it from the European plant, *O. Acetosella*, by its oblong unequally emarginate petals, as contrasted with the oval obtuse (not emarginate) petals of the European *O. Acetosella*. Bigelow himself in the same year (1824) treated the American plant as *O. Acetosella* with the comment: "The American plant has the petals oblong and unequally bilobate, a character which might be considered specific, did not the European plant, as I find from specimens, sometimes present the same figure."² Zuccarini, however, in his *Monographie der amerikanischen Oxalis-Arten* took up Bigelow's *O. americana*,³ and again in his *Nachtrag* recognized *O. americana* as a distinct species.⁴ All subsequent authors, however, have followed Bigelow's own printed statement and have not attempted to separate the American from the European plant.

Our North American Wood Sorrel belongs distinctly in the Canadian zone, overlapping slightly into the Hudsonian, where it occurs in cool mossy woods, abounding through Canada from the southern side of the Labrador Peninsula to the Great Lake region, and south into northern New England and New York, and very locally at high elevations or in cool mountain woods southward to the high mountains of North Carolina and Tennessee, and flowering in summer, from mid-June to August. *O. Acetosella* of Europe is a plant widely dispersed over the continent, running south quite to the Mediterranean region, and growing in apparently much drier open habitats, judging from

¹ DC. Prodr. i. 700 (1824).

² Bigel. Fl. Bost. ed. 2, 258 (1824).

³ Zucc. Mon. am. Ox. 26 (1825).

⁴ Zucc. Nachtr. Mon. am. Ox. 35 (1831).

photographs which show *O. Acetosella* associated in colonies with *Anemone nemorosa* and other plants of open woods; and in Europe the plant flowers in early spring, mostly in April and early May. Thus it would seem that *O. Acetosella* of Europe is one of the early spring flowers of open sunny woods, while its North American representative is a summer-flowering plant of the dense Canadian spruce and fir forests. This discrepancy in the flowering seasons and the ranges of the plants at once suggests that they are probably not conspecific, since most plants of Canadian distribution in America occur, when they are found in Europe, much farther north than with us.

The examination of very many plates, in fact all the plates found of the European species, shows the petals to be represented always as obovate and entire, or merely undulate or very obscurely notched at summit; the American material having, as Bigelow said, oblong petals with a conspicuously oblique notch at the tip. Some herbarium material of the European plant, poorly dried, appears, apparently by shrinkage, to be slightly emarginate, but it is significant that the European plates are so constant in showing scarcely any notching. Other characters appear upon investigation. For instance, the capsule produced from the petaliferous flowers in the European plant is conic-ovoid, this form showing not only in herbarium material but in all the excellent European plates; the capsule from the petaliferous flowers of the American plant, on the contrary, is depressed-globose, barely tapering at summit and in some cases almost oblate. The seed of the European plant is conspicuously ribbed with acutish parallel ridges, but the seed of the American plant has these ridges nearly or quite obsolete, the surfaces being smooth or only obscurely ridged. The sepals of the European plant have very delicate marginal hairs, which are usually appressed to the margin and not readily seen, while the sepals of the American plant are conspicuously hispid-to villous-ciliate with widely spreading reddish hairs. Another character of fair constancy appears in the rootstock. In the American plant the persistent bases of the old petioles are conspicuous on the rootstocks on account of the circular calloused tip (the point of disarticulation of the old petioles); in the European material and in the European plates these calloused tips are rarely seen, this difference arising from the fact that in the American plant the disarticulation of the petiole takes place above the tips of the subtending persistent stipules, in the European well below the tips of the stipules.

These differences between the plants, as well as the pronounced difference in the distribution of the European and the American Wood Sorrels indicate that DeCandolle and Zuccarini were correct in maintaining the American plant as a distinct species, and that Bigelow's first impulse to separate the American plant was well grounded, although he afterward, from failing to observe the numerous concomitant characters, reduced his own species. The Wood Sorrel of northeastern America should, therefore, be known as *Oxalis americana* Bigelow.

The typical *Oxalis americana* has the petals white, delicately lined with pink or crimson, rarely with the pink tinge nearly or quite absent. Occasionally colonies are found with the petals bright rose-purple, quite parallel with the European plants which have been called *O. Acetosella*, var. *subpurpurescens* DC. These plants, however, represent merely a color form, which occurs more or less sporadically through the range of the typical form of the species, and they are best treated as forms rather than as varieties. The form with the rose-purple petals in America may be called

OXALIS AMERICANA Bigelow, forma **rhodantha**, n. f., petalis purpureis.

Petals purple.—MAINE: swamp, Chesterville, July 3, 1906, Agnes Chase & Lillian O. Eaton. NEW HAMPSHIRE: Crawford Notch, C. E. Faxon (TYPE in Gray Herb.). VERMONT: Garden of Eden, Eden, Lamoille Co., July 19, 1916, C. H. Knowlton; mountain-side, Manchester, 1892, A. J. Grout.

GRAY HERBARIUM.

A VARIETY OF SMILAX GLAUCA.

S. F. BLAKE.

SOME years ago I became acquainted with the fact that *Smilax glauca* Walt., as generally understood, comprises two distinct forms — one a plant with leaves quite smooth or, under a lens, very obscurely papillose beneath, the other with the leaves prominently roughened beneath, either chiefly on the veins or densely over the whole surface, with short subglanduliform bluntish papillae, or even hirtellous-pul-